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Survey and countermeasure discussion of College students' campus fire safety

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Abstract

In recent years, frequent fires in universities indicated the shortage of college students' fire safety skills and school construction work of fire, and the fire safety situation is unoptimistic. Therefore doing a good job in the campus fire safety work and reducing the occurrence of fire accidents have become the key work of the construction of the universities now. In this study, Zhengzhou University of Light Industry is taken as the example. The questionnaire on fire knowledge, the operation of the fire safety apparatus, the outline of simulating the situation of fires was performed to explore the college students' knowledge of fire safety and weak links of firefighting.. In order to provide a theoretical basis on reducing the heavy casualties and property losses, we combine various potential factors with the current situation of the university fire safety, objectively and scientifically analyses the campus fire safety situation and proposed the corresponding solutions.

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1. Countermeasures of exploring the status of knowledge and skills of the fire safety of college students

1.1. Survey methods and Data statistics

Methods description: This research takes all the students in Zhengzhou University of Light Industry as the sample and is divided into three parts: the previous survey methods, survey methods and the exploration of data statistical analysis methods, program implementation and feedback, statistics and analysis of the late stage^[1]. Through checking the relevant information, this research is decided to carry on by the survey of questionnaire on fire knowledge, the operation of the fire safety apparatus and the outline of simulating the situation of fires^[2]. The questionnaire survey is mainly related to the knowledge of fire safety, the use of fire equipment, skills of fire escape and self-help and so on^[3]. In this research total of 700 questionnaires had been made and 674 pieces were recovered while 655 were valid.

The survey indicated that 96% of the students obtained basic knowledge of fire safety through the promotion from school and organization of fire-drill but not from the active learning; 68% of the students even felt they the fire is far from them and only need to pay little attention to avoid^[4]; 61% of the students did not take the propaganda and the exercise of school fire safety seriously and did not take the practical methods of the rescue's security theory into consideration^[5].

By setting the fire apparatus operation desk in the restaurant and the school dormitory downstairs, where three groups fifteen times in total were set^[6]. And a survey on the use of fire extinguishers, gas masks, fire alarm, fire grille switch, fire knot and fire hose nozzle were performed. The results showed that 62% of the students said they had seen but never use it

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before; 70% of the students said they had read the instructions of the fire fighting equipment; 32% of students could not finish the operation quickly and accurately^[7].

1.2. Analysis of the data

The situation of campus fire safety is still grim. According to incomplete statistics, during 2006 and 2012 total of 9122 accidents occurred, in which 118 people died and 171 people injured and 63,640,000 RMB was lost. There are nearly thirty million students in colleges in our country. Although the annual meeting of the fire and fire drills were made to popularize the knowledge of fire safety, but get little success. The data of the survey shows that college students' fire safety quality is still low and lack of awareness of fire safety generally. Still a lot of students do not know how to report the fire and help themselves quickly, do not know how to use the fire safety equipment correctly, pay no attention to the safety of channels in campus buildings and are not alert to the fire safety hidden hazards around them. The serious shortage of students' knowledge of the application of fire safety exposed in the survey.

2. Weak links of the fire safety work in colleges

Colleges are devoted to improve the ability of preventing and dealing with the fire risks in various ways. However, many objective reasons for accidents of campus fire are still exist.

2.1. The hardware construction of fire fighting and the ineffective managements

Student dormitories are not only the gathering area of students but also a large number of security key areas of electricity use. It is very easy to cause significant casualties and property losses when fire happened, which results in adverse social impact. The colleges develop fast in China in recent years. And a considerable numbers of schools built new campuses, the occurrence of both new and old campus together is hard to avoid problems of differences in line specifications between new campus and old campus, compatibility, and maintain oversight and so on. On the afternoon of October 9, 2013, the storage room in Henan Sixth Middle School of PingDingshan City suddenly caught fire and smoke filled the entire campus. Due to a small range of fire and timely fire alarm, the campus teachers and students in an orderly manner to escape to avoid casualties. It is reported that the cause of the fire is the ignorance of a storage room line inspection and the line aging caused a short circuit fire.

2.2. Weak Fire safety awareness

In recent years, colleges continue to strengthen fire safety education; teachers and students gradually improve the awareness of fire. However, from the research data, college students' awareness of the fire is still in the primary stage. The ability to have the fire supervision consciousness and exclude the fire hazard is far from enough. Although, The Fire Safety Management Regulations, has included the fire education into the education, but the data suggest that most of the students did not really make use of the knowledge. This is related to the form of the content of colleges' propaganda of fire which is single and boring. Publicity and education in the promotion of the board and the implementation of the oral, which ignores the education of students' behavior awareness. Fire safety propaganda becomes boring slogans, resulting in this embarrassing situation of no less publicity exercises and low fire quality. Publicity and education effect greatly reduced. It is difficult to cultivate students' awareness of fire protection, so it is worth to explore the issue of how to cultivate students' subjective initiative of learning the knowledge of fire prevention.

2.3. Emergency treatment norms are not perfect enough

Fire emergency plan for sudden fire. On the basis of analysis to the scene of the fire situation, in order to reduce fire accidents caused by the loss of life and property, carry out emergency rescue quickly and orderly, with the advanced, scientific, effective action plan or scheme. Emergency plan should include emergency disposal measures after the fire, emergency rescue operations, rescue equipment and supplies to protect, post disaster relief and resettlement of personnel and a series of related issues as the operation of the steps.

According to the survey, all the buildings in the campus are posted with fire management regulations, but there are few standardized procedures for emergency treatment when the fire occurred. Emergency plan like the trunk of a tree, it is the guidance document for directing the fire rescue, and plays a decisive role on the disposal of fire and rescue personnel placement. Foliage can not only rely on the trunk, but also leaves and branches, if in the fire for the first time to cut off the

power supply, close doors and windows and other preliminary emergency measures at the scene which may mostly suppress the fire development and avoid more casualties. Generally speaking, most of the security personnel do not have a high quality for firefighting, it is necessary to post emergency handling norms. Fire skill training and daily publicity should also be put in place; the ability for grassroots staff to deal with fire could be improved.

3. Fire Safety Strategy

3.1. Change the way of publicity

Publicity and education are the main way for students to obtain knowledge of fire protection, "Fire Law of the people's Republic of China" stipulates that fire work to implement the "prevention first, prevent and eliminate combined" principle, which is the experience of our country for a long time to fight against the fire. To do a good job of prevention work, improve the teachers and students of the fire safety awareness, we must implement the work of the fire publicity and education into the campus life. Fire education cannot rely on preaching, in particular, to focus on the method of targeted, practical and diversity, and to explore the propaganda by the action.

(1) To put an end to the preaching propaganda. Publicity should get rid of the tedious; the first thing to get rid of the stereotype of the terms of the propaganda and to be used in the case of a cruel fact sounded the alarm. Next thing is to focus on practical, summed up a set of applicability to a wide range of campus fire process in case of emergency rapid scientific self-help and mutual aid, for the students. To create a campus safety actively, culture is the key to guide and organize the mobilization of teachers and students to participate in the interaction of the fire safety culture construction, regular fire service units, and the fire appliances together, in the dormitory, dining room for the student's hands-on operation. Not only can avoid the frequent use of human resources, but also can make a substantial increase in the scope of practice, more and more effective.

(2) The use of new media channels. Nowadays the network has become the pulse; it is the first source of information in society. Using the advantages of network platform to spread quickly, wide audience, combined with fire video, safety lectures, questionnaire and other means to carry out fire promotion from a number of angles, both to save the budget for the fire fighting hardware construction, and can greatly improve the efficiency of publicity. Each unit should be often supervision and check implement fire safety responsibilities about the fire control safety regularly, such as firefighting equipment maintenance, emergency supplies, in particular to do spot check about student dormitories' safety, found the problem and follow up the rectification. Who is responsible for the major problems should be criticized, cancelled and related responsibilities in the department of leadership qualification.

3.2. Scientific establishments of fire safety system and emergency plan

(1) Scientific and complete fire prevention system is the fundamental guarantee of campus fire safety. We should improve the fire safety responsibility system, make school, college, department and individual responsibility at all levels of fire clear and refine the fire regulations so that each district has responsibility for fire supervision. The performance of default and irresponsible criticism should be resolutely ordered rectification, and persons responsible for the accident caused by dereliction of duty shall be held responsible. The responsible person or department taking active action to carry out the work of life should be commended. Keep strictly the rules for reward and punishment trenchant, form the atmosphere of self-discipline and conscientiously do a good job of fire safety.

(2) The strict supervision and assessment system of fire protection and fire safety management must be implemented. On the basis of extensive research and scientific proof, the problems found in practice about the existence of fire safety management system and combing the integration will be check leakage, fill a vacancy, advancing with the times and make it have more scientific, systematic and operability. Supervision departments should follow the principle of responsibility strictly; supervision units should carry out comprehensive self-examination and correct the hidden trouble in time.

(3) The establishment of emergency plan should pay attention to the integrity, the scientific nature and the maneuverability. Campus construction personnel intensive, fire load is not the same building, fire emergency plan should be made based on a comprehensive investigation of the actual situation of the building, to carry out scientific analysis and demonstration of the characteristics of the relevant building, for major fire hazards and possible fire or explosion of key positions and locations, to prepare a complete fire emergency plan to ensure that the construction of fire can quickly and effectively conduct emergency response.

Emergency plan is not a piece of paper, but must be operable. In the preparation of different plans for the construction, to take into account of the actual situation of the focus of the actual fire extinguishing is rapidly changing. When planning the preparation of special fire considerations, the uncertainties should be taken into account. After the preparation of the plan

finished, the training and actual combat should be taken to find the shortcomings of the plan, then the plan would be more comprehensive and feasible.

3.3. *Actively promoting the application of the Internet of Things and prevent and control campus fire*

Firefighting system can largely be divided into sensor layer, internet layer and application layer. The sensor layer is responsible for the perception of fire scene and sending the real time situation to the net layer. Those signal transmitted to the net layer will be analyzed by the computer. This information will also be sent to the monitor and control department, the fire department and the application layer. The application layer will start the automatic fire control device; meanwhile the scene will be transmitted to the fire brigade through application on the terminal devices.

By applying various sensing equipment, video capture device in laboratories, dormitories and other fire prone places ,the fire alarm will be activated through the net by sensor and the scene of fire can be sent back to the control room ,where the staff will judge the seriousness .When the sensing device perceives the temperature change quickly and the temperature reaches the set value, the automatic start automatic water spraying device and the application layer processing device are used to carry out the preliminary control method to the field. With the help of the powerful calculating capability of computers, the system will transfer the summarized information collected by on-site digital signals which are converted from stimulated the ones to the fire department ,which helps the fire department with an efficient and reasonable resource allocation.

It will make the fire rescue work more intelligent as well as efficient, that applying the Internet of Things applications into the field of fire emergency rescue. A variety of sensing devices, field cameras and other technologies and devices will lead the rescue process to digital, visual direction of development. Through real-time transmission in the rescue scene, which provides a vital reference for the fire command center, can a lot of valuable time for fire rescue be saved.

4. The Conclusion

Through this research, the college students' knowledge level of fire safety was defined, and the hidden hazards of some campus security were analyzed, and the corresponding solutions are put forward. Fire safety construction should be based on the cultivation of the awareness of fire, the implementation of the publicity and education. If our society, schools, teachers, students and staff can work together, the campus fire safety construction scale may get up to a higher level.

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